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5-7-2020

## Population, Environmental Risks and Climate Change (PERCC)

Population Council

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### Recommended Citation

"Population, Environmental Risks and Climate Change (PERCC)," fact sheet. New York: Population Council, 2019.

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# POPULATION, ENVIRONMENTAL RISK, AND CLIMATE CHANGE (PERCC)

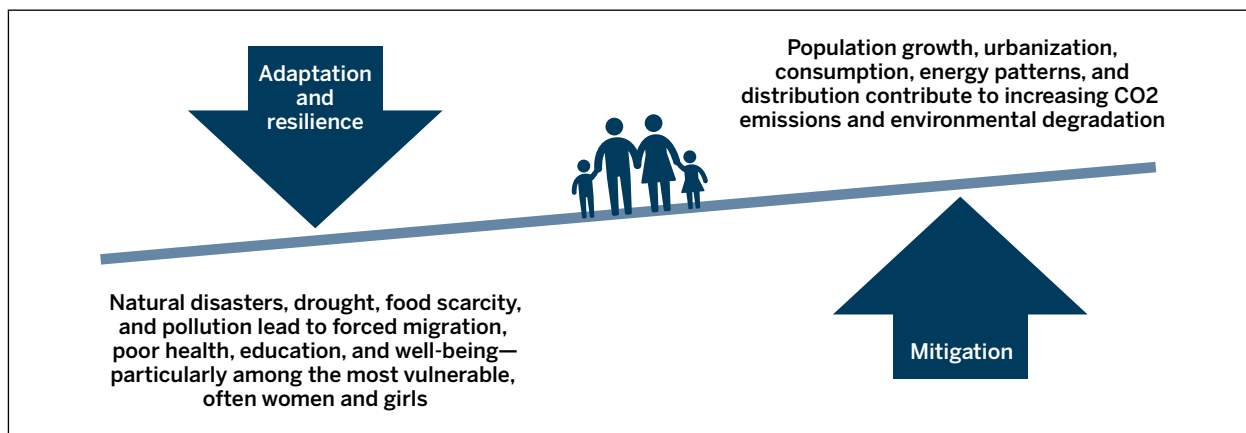
**The impacts of climate change and environmental risks pose an unprecedented threat to the global health and development gains made to date.**

People are inextricably linked to the causes and consequences of climate change and environmental risks. Communities that contribute the least to creating climate change, meaning they produce the lowest CO<sub>2</sub> emissions, are disproportionately bearing the burden of the adverse effects of climate change—such as food shortages due to drought or forced migration after a natural disaster. **More research is necessary to understand the complex interactions and dynamics between people and their environment**, which will inform urgently needed climate-resilient development programs and policies that are rooted in “climate justice” principles.






















In 2016, the Population Council began to develop evidence on how to strengthen the resilience of vulnerable populations to adapt to environmental risks and the effects of extreme climate change. In 2018, the Population Council expanded this work with the launch of the **Population, Environmental Risk, and Climate Change (PERCC) research initiative—which deepens the Council’s mission with a new institutional commitment to improving understanding of the intersection of population and climate sciences.**

**The PERCC initiative generates rigorous research** to better understand how climate and the environment impact people, and how people, in turn, impact the climate and their environment. Evidence generated under PERCC is **designed to inform both local and global policies and programs.**

- PERCC aims to understand who is **vulnerable** to the effects of climate change, and how this vulnerability (e.g. geographic location, gender, age, socioeconomic status) relates to their exposure to environmental risks and opportunities to build **resilience**. We aim to measure and describe the adverse health, education, and economic effects they face, and how households and communities can **adapt** to a rapidly changing world.
- PERCC uses geographic and demographic data to predict how the distribution and composition of people across different scenarios of global development will change over time. These data can inform when, where, how, and why people contribute to carbon emissions. Ultimately, our results can be used to develop evidence-based programs and policies to **mitigate** carbon emissions and environmental degradation.



## PERCC EVIDENCE AND PRIORITIES

	CURRENT PROJECTS	FUTURE DIRECTIONS
 <p><b>GENDER, SEXUAL, AND REPRODUCTIVE HEALTH</b></p>	 Examining the effects of <b>climate change on fertility and reproductive health outcomes</b> in Bangladesh, Mexico, Pakistan, and Zambia   Combining data on meteorology, agriculture, demographics, and economics to develop an <b>integrated picture of climate change and population trends</b> across Pakistan. Publishing notable findings on fertility intentions and migration patterns <sup>1</sup>	 Exploring ways to lower the <b>risks that young women in Bangladesh face when they migrate from rural villages</b> to the port city of Mongla in response to the effects of climate change   Examining the effects of <b>climate variability and shocks</b> on the daily challenges of Mexican and Central American women in rural and poor urban settings; studying changes in their employment, livelihoods, safety, health, housing, and access to basic services
 <p><b>HEALTH AND WELL BEING</b></p>	 Identifying the association between <b>drinking-water salinity and the risk of pre-eclampsia</b> in coastal Bangladesh <sup>2</sup>   Tracking regional, age, and sex <b>differentials in fatalities associated with extreme weather</b> events in India <sup>3</sup>	 Evaluating <b>behavior change campaigns in drought-prone settings</b> in the Sahel to improve unsafe water, poor sanitation and hygiene (WASH), nutrition, family planning, and maternal child health outcomes   Exploring the associations between <b>air pollution and health outcomes</b> in India and East Africa
 <p><b>MODELING AND MITIGATION</b></p>	 <b>Modeling where people are located around the world</b> as well as their characteristics, e.g. gender, educational attainment, and consumption levels   <b>Predicting who will be exposed to environmental threats</b> (such as wildfires <sup>4</sup> ) and which changes (such as education <sup>5</sup> ) could have a <b>mitigating effect</b> on climate change	 Providing <b>demographic data, projections, and modeling tools to help develop socioeconomic scenarios</b> for global and local policy-making on environmental and climate change   Studying and modeling the relationship between <b>demographic dynamics and climate change</b> and evaluating the impact of socioeconomic policies on vulnerable populations
 <p><b>URBANIZATION AND MIGRATION</b></p>	 Creating <b>gridded estimates and integrating disparate data on urbanization</b> to identify the most vulnerable people and places in India least able to cope with flood events <sup>6,7</sup>   Documenting, in urban slums, the <b>needs of displaced people and migrants</b> —especially girls and vulnerable sub-groups—at risk of trafficking and poverty <sup>8</sup>	 Conducting <b>modeling and research to better understand patterns</b> of urbanization and internal migration to better target programs and policies   Exploring the association, in Tanzania, between <b>urbanization, obesity, and c-reactive protein</b> —a biomarker that may predict cardiovascular disease and stress   Conducting research to understand the <b>effects of cities</b> on biodiversity, resilience of its citizens, and efficiency of energy-saving technologies

<sup>1</sup>Sathar Z.A. and K. Khan (eds). 2019. *Climate, Population, and Vulnerability in Pakistan: Exploring Evidence of Linkages for Adaptation*. Islamabad: Population Council.

<sup>2</sup>Pinchoff et al. 2019. "Spatio-temporal patterns of pre-eclampsia and eclampsia in relation to drinking water salinity at the district level in Bangladesh from 2016 to 2018," *Population and Environment*.

<sup>3</sup>Mahapatra et al. 2018. Extreme weather events induced deaths in India 2001–2014: Trends and differentials by region, sex and age group." *Weather and Climate Extremes*.

<sup>4</sup>Noor et al. 2016. "Demographic controls of future global fire risk." *Nature Climate Change*.

<sup>5</sup>O'Neill et al. 2020. "The effect of education on determinants of climate change risk." *Nature Sustainability*.

<sup>6</sup>Balk et al. 2019. "Urbanization in India: Population and urban classification grids for 2011." *Data*.

<sup>7</sup>Pinchoff et al. 2018. "High-risk urbanization: Variation in urban population growth across flood and drought prone regions of India, 1990–2014." Population Association of America.

<sup>8</sup>Temin et al. 2013. *Girls on the Move: Adolescent Girls & Migration in the Developing World*. Population Council.

Learn more about PERCC projects: <https://www.popcouncil.org/research/selected-percc-2020-projects>

## FUNDING FOR THE FUTURE

PERCC was launched with a combination of small grants from external donors and a special allocation from the Population Council's capital fund. With this investment, Council researchers and partners generated ideas and evidence that quickly gained momentum—making a compelling case for more innovation and research. In early 2020, preliminary budgets for concepts of new or extended research that address the PERCC questions total over \$5 million for just one year, which far exceeds existing resources.

**The vast majority of funding and programming addressing climate change mitigation and adaptation around the world is focused on transitioning individual and societal behaviors away from fossil fuel reliance toward more eco-friendly practices with the goal of eliminating or at least reducing CO2 emissions. While important, that approach is insufficient to meet the massive challenges that a changing climate and increased environmental risks portend.** Evidence is needed to describe who, what, where, when, and how these risks affect a range of populations so that policymakers can anticipate crises and implement programs that address specific needs.

**We are seeking \$25 million over 5 years to fully fund the PERCC research agenda, nurture new ideas, and forge new partnerships, and turn the findings from this research into solid recommendations for local, district, national, and global policymakers all of whom are seeking more and better evidence to guide their urgent mitigation and adaptation programming.** Our campaign to raise these funds will be targeted to donors of all sizes and modalities, from one-time individual contributions to multi-year institutional partnerships.

Research at the intersection of the population and climate change sciences has been conducted for many years, but not at scale. PERCC proposes to do just that. **With large-scale funding, PERCC can generate extensive evidence that we need to ensure that all populations have the tools, resources, and information to help them fully adapt and mitigate.**

## POPULATION COUNCIL EXPERTISE

For 65 years, the Population Council has conducted research to address critical health and development issues. The PERCC initiative complements ongoing Council research, expanding our focus by aiming to understand the opportunities and challenges related to both adaptation and mitigation of climate change and environmental risks.

Our **expertise in research design, demographic modeling, geospatial analysis, and rigorous testing of innovative solutions, combined with deep local ties through our 12 country offices,** provide a unique perspective and skill set to address urgent issues in climate and development.